THAT WHICH IS CLAIMED:

1. A supercharged gas turbine engine comprising:
an open-cycle core gas turbine engine for generating shaft power output, said core gas turbine engine includes a multi-stage compressor, the first stage of which being a rotary ram compressor;
a supercharger for supercharging intake air of the core engine, said supercharger includes a rotary ram-in compressor and a turbine, said turbine has variable-area nozzle assembly and is driven by gases discharged from the core engine;
operator controlled means for elective bleeding of variable part of the gases discharged from the core engine and supplied to the supercharger's turbine;
at least one pressure sensor for detecting the degree of rise in the pressure of air supplied by the supercharger's compressor;
means for adjusting the area of the nozzles of the supercharger's turbine according to the detected degree of rise in the air pressure; and
means for adjusting the rate of fuel supply to the core engine according to the pressure level of air supplied by the supercharger's compressor.

2. A supercharged gas turbine engine comprising:
an open-cycle core gas turbine engine for generating shaft power output, said core gas turbine engine includes a multi-stage compressor, the first stage of which being a rotary ram-in compressor;
a supercharger for supercharging intake air of the core engine, said supercharger includes a rotary ram-in compressor and a turbine, said turbine has variable-area nozzle assembly and is driven by gases discharged from the core engine;
operator controlled means for elective bleeding of variable part of the gases discharged from the core engine and supplied to the supercharger's turbine;
at least one pressure sensor for detecting the degree of rise in the pressure of air supplied by the supercharger's compressor;
means for adjusting the area of the nozzles of the supercharger's turbine according to the

detected degree of rise in the air pressure; and

means for adjusting the rate of fuel supply to the core engine according to the pressure level of air supplied by the supercharger's compressor.